

Appl. No.: 10/039,290  
Amdt. Dated: 06/22/2006  
Off. Act. Dated: 03/23/2002

### **REMARKS/ARGUMENTS**

Reconsideration of this application is respectfully requested in view of the foregoing amendments and discussion presented herein.

1. Rejection of Claims 1, 3, 13-15, 17, 19, 24, 30-31, and 40-44 under 35 U.S.C. § 102(b).

Claims 1, 3, 13-15, 17, 19, 24, 30-31, and 40-44 were rejected under 35 U.S.C. § 102(b) as being anticipated by Taketoshi Naoyuki (Japanese Publication No. 2000-121585).

After carefully considering the grounds for rejection, the Applicant responds as follows.

Claims 1, 40, and 43. Independent Claims 1, 40, and 43 are directed to apparatus and methods of non-contact thermal measurements. These claims have been amended to more particularly recite “*an active electronic device*”. In addition, thermal measurements of the active electronic device are recited in the amended claims as being taken in response to changes in operating current or device state. The modulation of the power dissipated by the active device is thus registered by the illumination detector.

However, the Taketoshi reference, describes a “*Measuring Apparatus for Thermophysical Property in Very Small Region*”. In the Taketoshi reference, a laser beam is directed at a metal film on the surface of a sample, and another laser beam is used to measure the temperature of the metal on the surface of the sample.

It can be seen that the Taketoshi reference applies to material surfaces while heating is provided by way of a second laser beam directed at a metal thin film disposed on the surface of the material (see Abstract).

Support for an anticipation rejection requires that every claim element be taught or inherent in a single prior art reference MPEP §706.02a. The amended claims recite

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a measurement process for active devices subject to modulated operating current or device state which is not taught by Taketoshi.

Therefore, the Taketoshi reference does not anticipate these amended claims. Applicant respectfully requests that the rejection of Claims 1, 40 and 43, and the claims that depend therefrom, be withdrawn.

2. Rejection of Claims 2, 12, 16, 20-23, 25-26, and 27-29 under 35 U.S.C. § 103(a).

Claims 2, 12, 16, 20-23, 25-26, and 27-29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Taketoshi (JP Publication No. 2000-121585).

Claim 2. Claim 2 is the independent claim within this group of claims. In support of the rejection, the Examiner states that Taketoshi discloses an apparatus for providing non-contact thermal measurements. The Examiner goes on to admit that the Taketoshi reference does not disclose a signal processor to filter one or more direct current components from said signal.

However, Claim 2 has been amended similarly to Claims 1, 40, and 43, discussed above, to provide more particularity. Claim 2 recites, in a similar manner to Claims 1, 40, and 43 discussed above, the non-contact measurement of an active electronic device in response to changes in operating current or device state. It should be understood that the disclosure of Taketoshi does not teach, suggest, or provide motivation or incentive for what is recited in Claim 2.

Therefore, Applicant respectfully requests that the rejection of Claim 2, and the claims that depend therefrom, be withdrawn.

3. Claims 1-31, 40-44, and 49-59 are nonobvious.

Nor would the subject matter of Claims 1-31, 40-44, and 49-59 be obvious to a person having ordinary skill in the art in view of the Taketoshi reference. The object and operating principles of Taketoshi differ from that of the claims of the instant

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application. Taketoshi utilizes a two beam approach to determining thermal delay and diffusivity, and provides no teaching toward utilizing changes in device dissipation. This is not surprising as the object of the Taketoshi reference is that of measuring the specific thermophysical properties of thermal delay, permeability and diffusivity in a very small region of a material, and not for a device. It will be appreciated that local heating is required in order to determine diffusivity and these other inherent characteristics of the material.

Accordingly, the cited reference does not teach, suggest, or provide motivation or incentive for thermal area measurements of an active device in response to changes in power dissipation. Thus Claims 1-31, 40-44, and 49-59 recite apparatus and methods which are patentable over the cited references for purposes of 35 U.S.C. § 103.

4. Amendment of Claims 1-3, 7, 15-16, 21-23, 26, 30, 40-41, and 43-44.

Claims 1, 2, 40, and 43. Independent Claims 1, 2, 40, and 43 have been amended to recite thermal measurement for active electronic devices. It should be appreciated that such a device is activated using electric current, and can be pure electric, electronic, optoelectronic, and so forth. The specification makes specific mention on page 9, lines 15-18, of the following: “*...small geometry active devices (micron and sub micron regimes), such as integrated circuits, MEMs devices, HIT devices, and other small scale active devices whose thermal activity may be modulated, and for which thermal profiles need to be accurately profiled, or imaged.*” The amended claims describe modulating thermal excitation of the device in response to changes in operating current or device state. Support for these elements is found in the drawings as well as throughout the specification, such as in the title, field of the invention, and page 10, line 20 through page 11 line 3.

Claims 3, 7, 15-16, 22-23, 26, 30, 41, and 44. Dependent Claims 3, 7, 15-16,

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22-23, 26, 30, 41, and 44 were amended to maintain proper antecedent basis of these claims in response to amendments made to the independent claims.

Claim 21. Dependent Claim 21 was amended to correct a typographical error discovered while drafting this response. The phrase “*array of illumination detector*” was changed to “*array of illumination detectors*”.

5. Amendments Made Without Prejudice or Estoppel.

Notwithstanding the amendments made and accompanying traversing remarks provided above, Applicant has made these amendments in order expedite allowance of the currently pending subject matter. However, Applicant does not acquiesce in the original grounds for rejection with respect to the original form of these claims. These amendments have been made without any prejudice, waiver, or estoppel, and without forfeiture or dedication to the public, with respect to the original subject matter of the claims as originally filed or in their form immediately preceding these amendments. Applicant reserves the right to pursue the original scope of these claims in the future, such as through continuation practice, for example.

6. Addition of Claims 49-59.

Claims 49-59 have been added to the instant application.

Claims 49, 51, 53, and 55. Claims 49, 51, 53, and 55 depend from independent Claims 1, 2, 40, and 43 respectively and recite recovering amplitude and phase information. Support for this is found in the specification, such as at page 48, line 15 through page 47, lines 2-18.

Claims 50, 52, 54, and 56. Claims 50, 52, 54, and 56 depend from dependent Claims 49, 51, 53, and 55, respectively, and recite representation of the amplitude and phase in a non-contact thermal image. Support for this is found throughout the specification, including page 47, line 17 through page 48, line 5.

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Claim 57. Independent Claim 57 was created based on the material of Claim 1 and written to include dependent Claims 3-4. In addition, the means element is replaced with the description of an electronic circuit; support for which is found throughout the specification, including page 24, lines 2-15.

Claim 58. Independent Claim 58 was created with the material of method Claim 40 which is written to include the recovery of amplitude and phase information and the representation of amplitude and phase as a thermal image output, as referenced above for new Claims 49-56. In addition Claim 58 describes that the signal output is generated without the necessity of scanning, support for which is found in the specification, such as at page 32, lines 13-18.

Claim 59. Dependent Claim 59 recites increasing the resolution of imaging described in Claim 58 utilizing superposition methods, support for which is found in other original claims as well in the specification, such as at page 37, line 17 through page 38, line 2.

7. No Additional Claim Fees Due.

The additional claims include eleven (11) total claims including two (2) independent claims, which replace a portion of the twelve (12) total claims including six (6) independent claims which were canceled in a previous response. Therefore, no additional fees for claims are due.

8. Request for Continued Examination (RCE).

An appropriate fee is enclosed for a RCE (Request for Continued Examination) of the instant application (See 37 CFR 1.114).

9. Conclusion.

Based on the foregoing, Applicant respectfully requests that the various grounds

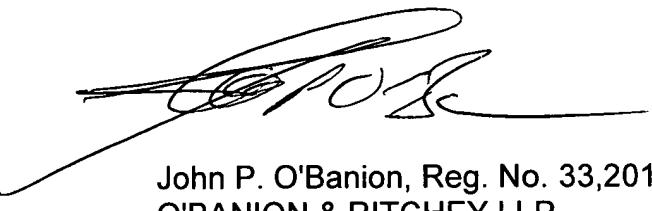
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for rejection in the Office Action be reconsidered and withdrawn with respect to the presently amended form of the claims and the arguments presented herein, and that a Notice of Allowance be issued for the present application to pass to issuance.

In the event any further matters remain at issue with respect to the present application, Applicant respectfully requests that the Examiner please contact the undersigned below at the telephone number indicated in order to discuss such matter prior to the next action on the merits of this application.

Date: 9/29/06

Respectfully submitted,

  
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